{In Archive} Continuous water level records at GE B-49
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02/04/2011 04:27 PM
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2 Attachments

B-49_cluster_2007_WLs.JPG B-49_cluster_2009 continuous monitoring.pdf

John,
I reviewing the continuous water level records at the GE B-49 well cluster at the Cayuga Site, I have drafted the following observations for possible inclusion in the RI report. I would like you to comment.

1. The D1-D2-D3 water level profiles are nearly identical, which shows that these deep-aquifer zones are hydraulically well connected.

2. Water levels in the D zones varied by more than 30 feet in each record (2007-08 and 2009), whereas water levels in the shallow zone (S) varied by about 20 feet. This indicates: (1) the deep zone receive more recharge than the shallow zones, and/or (2) the deep zones have a smaller coefficient of storage (i.e., is more confined) than the shallow zone.

3. During the periods from early December 2007 through late March 2008 and from early March through late April 2009, water levels in the S and upper intermediate (I1) zones were *lower* than the D zones, which indicates an upward flow gradient. This is likely due to recharge to the D zones (in focused areas north of the well site), which

over-pressured the D confined zones relative to the S and I1 zones. The gradient could drive upward flow in vertically connected areas, thereby recharging the S and I2 zones and allowing vertical mixing of water-quality constituents.

4. Prior to early December 2007 and after late April, 2009, water levels in the S and I1 zones were *higher* than the D zones, which indicate a reversal in the vertical gradient and the potential for downward flow. These periods likely reflect the relatively rapid drainage of water from the relatively transmissive D zones to discharge points during periods of scant recharge.

5. In the 2007-08 record, water levels in the lower intermediate (I2) zone were generally intermediate between zones above and below. Several anomalies, however, are seen in the I2 water levels:
(a) In November 2007 and in late January to early February 2008, the I2 zone had the *lowest* water levels;
(b) In early March through early April 2009, the I2 zone had the *highest* water levels;
(c) In mid-April through June 2009, the I2 zone had the *lowest* water levels.
These anomalous periods are unexplained. For the most part of the 2007-08 record, the I2 zone responds in an intermediate way between the zones above and below it (as would be expected), whereas in the 2009 record the I2 zone appears to respond more closely to the D zones that the I1 and S zones. If the above observations (5a-c) are true, this would indicate that the I2 zone periodically provides recharge into and discharge from the contaminated areas of Pinckney Road. Note also that many of the contaminated homeowner wells tap the I2 zone.

OBG deployed the transducer set for the second record period in late December 2008, but we only received the record for March to June 2009. We need to request the full record (in Excel format) for both periods in 2007-09.

I would appreciate your comments.

Best regards,

--Dave